

## SYLLABUS FOR THE POST OF ASSISTANT PROFESSOR IN THE DISCIPLINE OF ~~PROSTHODONTICS~~

The candidate for the post of assistant professor shall have higher competence in both general and special area of Prosthodontics.

### **Applied basic and medical sciences including Dental materials**

The candidate should possess knowledge on human anatomy, embryology, histology, applied in general and particular to head and neck, physiology & biochemistry, pathology and microbiology, virology, health and diseases of various systems of the body (systemic), principles in surgery and medicine, pharmacology, nutrition, behavioral science, age changes, genetics, immunology, congenital defects and syndromes and anthropology, biomedical applications, biocompatibility, composition, properties and technical aspects of dental materials and biomedical waste management.

Candidate shall have:

- Ability to clinically examine, analyze the investigation results, interpret radiographs, identify systemic health issues, which are outside the area of his specialty and competent to refer them to appropriate specialists to optimize systemic health of patients requiring a Prosthodontic therapy.
- Knowledge on emergencies as related to prosthodontics treatment.
- Ability to diagnose age changes and prosthodontic aspects of geriatric patients.
- Ability to diagnose failed restorations and provide prosthodontic therapy and after care.
- Essential knowledge on ethics, laws and jurisprudence and forensic odontology in prosthodontics.
- Ability to identify social, cultural, economic, environmental, educational and emotional determinants of the patient and consider them in planning the treatment.
- Ability to advice regarding case management involving surgical, interim treatment phases.
- Ability to use information technology tools and carry out research in basic and clinical aspects, with the aim of publishing his/her work and presenting his/her work at various scientific forums.
- Essential knowledge of personal hygiene, infection control, prevent of cross infection and safe disposal of waste, keeping in view the risks of transfer of tuberculosis, Hepatitis & HIV.
- Understanding of demographic distribution and target diseases of cranio-mandibular region related to Prosthodontics including crown & bridge and implantology.
- Laboratory technique management based on skills and knowledge of Dental Materials and dental equipment and instruments
- Sound knowledge for the application of pharmacology, effects of all relevant category of drugs on oral tissues and systems of the body and on medically compromised individuals.
- Thorough knowledge of the applied aspects of:

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- General Human Anatomy - Gross Anatomy, anatomy of Head & Neck in detail. Cranial and facial bones, TMJ and function, muscles of mastication and facial expression, muscles of neck and chain of back muscles including muscles of deglutition and tongue, arterial supply, venous and lymphatic drainage of the head and neck, anatomy of the Para nasal sinuses with relation to the Vth cranial nerve. General consideration of the structure and function of the brain, considerations of V,VII,IX,X,XI and XII cranial nerves and autonomic nervous system of the head and neck. The salivary glands, Pharynx, Larynx Trachea, Esophagus, Functional Anatomy mastication, Deglutition, speech, respiration, and circulation, teeth eruption, morphology, eruption and function. Anatomy of TMJ, its movements and abnormalities.
- Embryology- Development of the face, tongue, jaws, TMJ, paranasal sinuses, pharynx, larynx, trachea, esophagus, Salivary glands, development of oral and Para oral tissues including detailed aspects of tooth and dental hard tissue formation, anomalies.
- Growth & Development - Facial form and Facial growth and development, overview of dento-facial growth process and physiology from fetal period to maturity and old age, comprehensive study of craniofacial biology. General physical growth, functional and anatomical aspects of the head, changes in craniofacial skeletal, relationship between development of the dentition and facial growth.
- Dental Anatomy - Anatomy of primary and secondary dentition, concept of occlusion, mechanism of articulation, and masticatory function. Detailed structural and functional study of oral and para oral tissues. Normal occlusion, development of occlusion in deciduous, mixed and permanent dentitions, root length, root configuration and toothnumbering systems.
- Histology - histology of enamel, dentin, cementum, periodontal ligament and alveolar bone, pulpal and biological considerations.
- Anatomy and histology salivary glands, cranio-facial bones and other soft tissues.
- Anthropology & evolution - Comparative study of tooth, joints, jaws, muscles of mastication and facial expression, tongue, palate, facial profile and facial skeletal system. Anatomy of skull, bones, brain, musculo - skeletal system, neuromuscular coordination, posture and gait.
- Applied genetics and heredity - Principles of orofacial genetics, molecular basis of genetics, genetic risks, counseling, bioethics and relationship to prosthodontic management. Dentofacial anomalies, anatomical, psychological and pathological characteristic of major groups of developmental defects of the orofacial structures.
- Applied physiology and nutrition - Introduction, Mastication, deglutition, digestion, Homeostasis, fluid and electrolyte balance. Blood composition, volume, function, blood groups and hemorrhage, circulation, Heart, Pulse, Blood pressure, capillary and lymphatic circulation, shock, respiration, anoxia, hypoxia, asphyxia, artificial respiration. Endocrine glands in particular reference to pituitary, parathyroid and thyroid glands and sex hormones. Role of calcium, other minerals and Vit D in growth and development of teeth, bone and jaws. Role of

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Vit. A, C, D and B complex in teeth, bone, oral mucosal and periodontal health. Physiology and function of the masticatory system. Speech mechanism, mastication, swallowing and deglutition mechanism, salivary glands and saliva, healing of soft and hard tissue wounds.

- Endocrines - General principles of endocrine activity and disorders relating to pituitary, thyroid, pancreas, parathyroid, adrenals, gonads, including pregnancy and lactation. Physiology of pain, Sympathetic and parasympathetic nervous system. Neuromuscular co-ordination of the stomatognathic system.
- Applied pharmacology and therapeutics - Definition of terminologies used - Dosage and mode of administration of drugs. Action and fate of drugs in the body, Drug addiction, tolerance and hypersensitivity reactions, Drugs acting on the central nervous system, general anesthetics, hypnotics. Analeptics and tranquilizers, Local anesthetics, Chemotherapeutics and antibiotics, antitubercular and anti-syphilitic drugs, Analgesics and antipyretics, Antiseptics, styptics, sialogogues and antisialogogues, haematinics, Cortisone, ACTH, insulin and other antidiabetics, vitamins: A, D, B - complex group C and K etc. Chemotherapy and Radiotherapy
- Applied Pathology - Inflammation, repair and degeneration, Necrosis and gangrene, Circulatory disturbances, Ischemia, hyperemia, chronic venous congestion, edema, thrombosis, embolism and infarction. Infection and granulomas, Allergy and hypersensitive reaction, Neoplasm- Classification of tumors, Carcinogenesis, characteristics of benign and malignant tumors, spread of tumors. Applied histo pathology and clinical pathology.
  - Applied Microbiology- Immunity, knowledge of microorganisms commonly associated with diseases of the oral cavity (morphology cultural characteristics etc) of streptococci, staphylococci, pneumococci, gonococci and meningococci, Clostridia group of organisms, Spirochetes, microorganisms of causing tuberculosis, leprosy, diphtheria, actinomycosis and moniliasis etc. Virology, Cross infection control, sterilization and hospital waste management
  - Applied Oral Pathology -Developmental disturbances of oral and Para oral structures, Regressive changes of teeth, Bacterial, viral and mycotic infections of oral cavity, Dental caries, diseases of pulp and periapical tissues, Physical and chemical injuries of the oral cavity, oral manifestations of metabolic and endocrine disturbances, Diseases of the blood in relation to the oral cavity, Periodontal diseases, Diseases of the skin, bones, nerves and muscles in relation to the Orofacial structures.
  - Laboratory determinations- Blood groups, blood matching, hemoglobin, R.B.C. and W.B.C. count, Bleeding and clotting time, renal function tests, liver function tests, tests for diabetes, smears, analysis and cultures.
- BioStatistics- Study of Biostatistics as applied to dentistry and research. Definition, aim characteristics and limitations of statistics, sampling, collection of data, classification and presentation of data (Tables, graphs, pictograms etc) Analysis of data.

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- Introduction to biostatistics- Scope and need for statistical application to biological data. Definition of selected terms - scale of measurements related to statistics, Methods of collecting data, presentation of the statistical diagrams and graphs. Frequency curves, mean, median, mode, standard deviation and co-efficient of variation, correlation and regression, Co-efficient and its significance, normal distribution and tests of significance, parametric and non-parametric tests.
- Research methodology - Understanding and evaluating dental research, scientific methods, authority, hypothesis, presentation of results, Reliability, sensitivity and specificity, research strategies, Observation, correlation and regression and experimental design.
- Applied surgery & anesthesia- general principles of surgery, wound healing, incision, wound care, hospital care, control of hemorrhage, electrolyte balance. Common bandages, sutures, splints, shifting of critically ill patients, prophylactic therapy, bone surgeries, grafts, etc, surgical techniques, nursing assistance, anesthetic assistance. Principles in speech therapy, surgical aspects of craniofacial oncology, applied surgical ENT and ophthalmology. Plastic surgery - assistance in plastic surgery with prosthodontic therapy.
- Applied Radiology- Introduction, background of radiation, sources, radiation biology, somatic damage, genetic damage, protection from primary and secondary radiation, principles of X-ray production, applied principles of radio therapy and after care.
- Roentgenographs Techniques- Intra oral: Extra oral roentgenography, methods of localization, digital radiology and ultra sound, normal anatomical landmarks of teeth and jaws in radiographs, temporomandibular joint radiographs, neck radiographs.
- Applied medicine-Systemic diseases and its influence on general health and oral health. Medical emergencies in the dental offices - prevention, management, medico legal considerations, unconsciousness, respiratory distress, altered consciousness, seizures, drug related emergencies, chest pain, cardiac arrest, premedication, resuscitation, applied psychiatry for child, adult and senior citizens.
- Applied dental materials: All materials used for treatment and management of prosthodontic patient – materials used in clinical procedures, laboratory steps, associated materials, their composition, manipulation, technical considerations, shelf life, storage, sterilization, and waste management. Materials such as impression materials, cast and die materials, waxes, restorative and denture base resins, resins used in denture teeth, bonding agents, etchants, investment materials, metals and alloys, luting agents, dental ceramics, denture adhesives, cleansing agents, denture brush and accessory dental materials. Knowledge of biological, mechanical, physical, bio compatibility and other properties of all materials used for the clinical and laboratory procedures in prosthodontic therapy.

**Removable denture prosthodontics**

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- **Prosthodontic treatment for completely edentulous patients: conventional complete denture, immediate complete denture, single complete denture, tooth supported complete denture implant supported overdentures.**

Candidate shall have thorough knowledge of

- Definitions and terminologies as per, G.P.T. , the Cranio-facial structures including oral, teeth and associated structures and its functions, the reasons for loss of teeth, residual ridge reduction and methods of prevention and infection control.
- Edentulous predicament, biomechanics of the edentulous state, retention, stability and support mechanism for the natural dentition and complete dentures, biological considerations, functional and para functional considerations, esthetic, behavioral and adaptive responses, temporomandibular joint changes.
  - Effects of aging on edentulous patients - aging population, distribution and edentulism in old age, impact of age on edentulous mouth - Mucosa, Bone, saliva, jaw movements in old age, taste and smell, nutrition, aging, skin and teeth, concern for personal appearance in old age.
  - Sequelae of wearing complete denture - the denture in the oral environment - Mucosal reactions, altered taste perception, burning mouth syndrome, gagging, residual ridge reduction, denture stomatitis, flabby ridge, denture irritation hyperplasia, traumatic ulcers, nutritional deficiencies, masticatory ability and performance.
  - Temporomandibular disorders in edentulous patients - epidemiology, etiology, diagnosis and management. Thorough knowledge of various mandibular movements is required.
  - Nutrition Care for edentulous and denture wearing patient - Impact of dental status on food intake, gastrointestinal functions, nutritional needs, and nutritional counselling and supplementation.
  - Materials prescribed in the management of edentulous patients - Denture base materials, general requirements of biomaterials for edentulous patients, requirement of an ideal denture base, chemical composition of denture base resins, materials used in the fabrication of prosthetic denture teeth, requirement of prosthetic denture teeth, denture lining materials and tissue conditioners, cast metal alloys as denture, bases - base metal alloys.
  - Fabrications of complete dentures - complete denture impressions - muscles of facial expressions and anatomical landmarks, support, retention, stability, aims and objectives - preservation, support, stability, aesthetics, and retention. Impression

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materials and techniques - need of 2 impressions: the preliminary impression and final impression. Developing an analogue / substitute for the maxillary denture bearing area -anatomy of supporting structures - mucous membrane, hard palate, residual ridge, shape of the supporting structure and factors that influence the form and size of the supporting bones, incisive foramen, maxillary tuberosity, sharp spiny process, torus palatinus, anatomy of supporting, peripheral or limiting structures, vibrating line, preliminary and final impressions, custom tray and refining the custom tray, preparing the tray to secure the final impression, making the final impression, boxing impression and making the casts developing an analogue/substitute for the mandibular denture bearing area- anatomy of supporting structure, crest of the residual ridge, the buccal shelf, shape of supporting structure, mylohyoid ridge, mental foramen, genial tubercles, torus mandibularis, anatomy of peripheral or limiting structure - labial vestibule, buccal vestibule, lingual border, mylohyoid muscle, retromylohyoid fossa, sublingual gland region, alveolingual sulcus, mandibular impressions - preliminary impressions, custom tray, refining, preparing the tray, final impressions.

- Mandibular movements, maxilla-mandibular relation and concepts of occlusion - Gnathology, identification of shape and location of mandibular and maxillary arches, occlusion rims, level of occlusal plane, recording of orientation relation, usage of facebow, identification of hinge axis, determination of vertical dimension of occlusion and at rest, freeway space, physiologic rest position of mandible. Recording of centric relation by functional, graphics, tactile or interocclusal check record method, biological and clinical considerations in making jaw relation records and transferring records from the patients to the articulator, detailed knowledge of selection of articulators.
- Selecting and arranging artificial teeth and occlusion for the edentulous patient - anterior tooth selection, posterior tooth selection, and principles in arrangement of teeth, and factors governing position of teeth. The inclinations and arrangement of teeth for aesthetics, phonetics and various concepts of occlusion.
- The Try in - verifying vertical dimension, centric relation, establishment of posterior palatal seal, creating a facial and functional harmony with anterior teeth, harmony of spaces of individual teeth position, harmony with sex, personality and age of the patient, co-relating aesthetics and incisal guidance.
- Speech considerations with complete dentures - speech production - structural and functional demands, neuropsychological background, speech production and the roll of teeth and other oral structures - bilabial sounds, labiodentals sounds, linguodental sounds, linguoalveolar sounds, articulating characteristics, acoustic

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characteristics, linguopalatal and linguoalveolar sounds, speech analysis and prosthetic considerations.

- Waxing, contouring and processing the dentures, their fit and insertion and after care - laboratory procedures – waxing, festooning, contouring, flasking and processing, laboratory-remount procedures and selective grinding, finishing and polishing.
  
- Relining, rebasing and repair of acrylic dentures- various types, materials and techniques used.

**Procedural steps/sequence in conventional complete denture therapy:**

The laboratory steps involved in conventional complete denture therapy

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- Candidate shall have knowledge of digital analysis of edentulous arches, digital impression and jaw relations, virtual articulators, trial dentures, associated digital workflow in fabrication of complete dentures and recent advances in materials, techniques and equipments.
  
- Armamentarium for treatment.

**Immediate denture therapy:**

Advantages, disadvantages, indication and contra indication, diagnosis, treatment plan and prognosis, explanation to the patient, oral examinations, examination of existing prosthesis, tooth modification, prognosis, referrals/adjunctive care, oral prophylaxis and other treatment needs. First visit , extractions/surgical visit, Armamentarium for treatment, preliminary impressions and diagnostic casts, management of loose teeth, custom trays, final impressions and final casts, location of posterior termination and jaw relation records, setting the denture teeth/verifying jaw relations and the patient try in for the missing/posterior teeth, laboratory phase, setting of anterior teeth, wax contouring, flasking and dewaxing, processing, finishing and polishing of immediate denture, surgical templates, surgery and post-operative care, immediate denture insertion, patient instructions and subsequent service for the patient like follow-up appointments, relining and rebasing of the denture, types of immediate dentures.

**Over denture therapy:**

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- Tooth supported complete dentures – indications, contra indication, diagnosis, treatment plan and prognosis, explanation to the patient, oral examinations, examination of existing prosthesis, advantages and disadvantages, written consent for the treatment, selection of abutment teeth for tooth supported complete dentures. Non-coping abutments, abutment with copings, abutments with attachments, submerged vital roots, preparations of the retained teeth over dentures bars – bar joints and bar units. All clinical and laboratory steps involved in over denture therapy.
- Implant supported complete dentures- various types of implant overdentures, indications, contra indication, diagnosis, treatment plan and prognosis, explanation to the patient, oral examinations, examination of existing prosthesis, advantages and disadvantages, written consent for the treatment, selection of implant, placement, selection of various attachments, advantages, disadvantages , all subsequent clinical and laboratory procedures for over denture therapy.
- Usage of magnets in over denture therapy- types and techniques of usage, advantages, limitations and clinical steps involved.
- Armamentarium for treatment.

**Single denture therapy:**

- Advantages, disadvantages, indication and contra indication, diagnosis, treatment plan and prognosis, explanation to the patient, oral examinations, examination of existing prosthesis, tooth modification, prognosis, referrals/adjunctive care, oral prophylaxis and other treatment needs.
- Various types of single complete dentures
- Armamentarium for treatment.
- All clinical and laboratory steps involved in single denture therapy.
- Various complications associated with single denture therapy and their management.
  
- **Prosthetic treatment for partially edentulous patients: Clasp-retained/ conventional removable partial dentures, precision attachment retained removable partial dentures.**
  
- Definitions and terminologies, various classifications of partially edentulous arches – requirements of classification, particularly Kennedy's classification and Applegate's rules for applying the Kennedy's classification and types of removable partial dentures.
- Materials used for fabricating cast partial dentures: investment materials, alloys used, wax and resin patterns, casting armamentarium, materials used for finishing and polishing of CPD



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framework. Recent advances in fabrication of RPD frameworks: 3D printing/ Laser sintering technologies.

- All the procedural steps involved in treatment of partially edentulous patients with cast partial dentures and plate partial dentures starting from recording of chief complaint, dental and medical history, clinical examination, radiographic examination, consent for the treatment, mouth preparation, making of impressions, special impression procedures, altered cast technique, fitting the metal framework, recording of jaw relation, try in appointment, insertion and after care of the patient. Conventional and digital workflow for the treatment should be understood. Principles of designing RPD.
- Armamentarium for treatment.
- Components of RPD - major and minor connectors – mandibular and maxillary designs, types, requirements, indications, contra indications for usage. Reaction of tissue to metallic coverage. Rest and rest seats - from of the Occlusal rest and rest seat, interproximal Occlusal rests, internal rests, possible movements of partial dentures, support for rests, lingual rests on canines and incisor teeth, incisal rest and rest seat. Method to obtain the rest seat in a metallic/metal ceramic crown.

Direct retainer– various types, flexibility of retentive arms, stabilizing /reciprocal clasp arm, criteria for selecting a given clasp design, the basic principles of clasp design, circumferential clasp, bar clasp, combination clasp and other type of retainers.

Indirect Retainer - denture rotation about an axis-fulcrum lines, factors influencing effectiveness of indirect retainers, forms of indirect retainers, auxiliary Occlusal rest, canine extensions from occlusal rest

Selection and arrangement of teeth, waxing and carving and tryin of the trial denture, investing partial denture, processing the denture, remounting and occlusal correction to an occlusal template, polishing the denture.

- Initial placement, adjustment and servicing of the removable partial denture - adjustments on bearing surfaces of denture framework, adjustment of occlusion in harmony with natural and artificial dentition, instructions to the patient, follow - up services
- Relining of the removable partial denture - Relining tooth supported dentures bases, relining distal extension denture bases, methods of reestablishing occlusion on a relined partial denture.
- Swing-lock partial dentures
- Repairs and additions to removable partial dentures - Broken clasp arms, fractured occlusal rests, distortion or breakage of other components - major and minor connectors, loss of a tooth or teeth not involved in the support or retention of the restoration, loss of an abutment tooth necessitating its replacement and making a new direct retainer, other types of repairs, Repair by soldering and welding.

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- Removable partial dentures associated with maxillofacial prosthetics - intra oral prosthesis, design considerations, maxillary prosthesis. Obturators- various types, feeding plate, speech aids, palatal lifts, palatal augmentations, mandibular prosthesis, treatment planning and other clinical and laboratory steps, framework design, class I resection, Class II resection, guiding flange prosthesis.
- Management of failed restorations, work authorization.
- Precision attachments- Types, selection of attachment, techniques of usage, advantages, disadvantages, case selection.
- Plate partial dentures, interim and immediate partial dentures and flexible partial dentures – materials used, types, indications, contraindications, patient selection, all clinical and laboratory steps involved, specific instructions to the patients.
  
- **Implant Prosthodontics**
  - Implant prosthesis for partially and completely edentulous patients – Fixed and removable, complete and partial, science of Osseo integration, clinical and laboratory protocol for treatment with implants for over dentures, implant retained fixed complete and partial dentures, managing problems and complications, current and future directions.
  - Evaluation of bone, case selection, written consent, surgical techniques, and protocols for implant placement.
  - Various implant systems, surgical kits, physio dispensers, sinus lift equipment etc.
  - Conventional and digital evaluation, treatment planning and implant placement
  - Armamentarium for treatment.
    - Introduction and historical review
    - Biological, clinical and surgical aspects of oral and maxillofacial implants
    - Diagnosis and treatment planning and written consent for the treatment.
    - Radiographic investigations for selection of implants- conventional and CBCT.
    - Splints for guidance for surgical placement of implants
    - Intra oral plastic surgery, guided bone and tissue regeneration consideration for implants.
    - Implants supported prosthesis for complete edentulism and partial edentulism - all clinical and laboratory steps involved, including implant placement, impression procedures,

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placement of cover screw and healing caps etc. Securing denture/crowns/FPDs to the implants.

- Conventional vs Dynamic Navigation Techniques
  - Occlusion for implants support prosthesis.
  - Peri-implant tissue Management
  - Peri-implantitis and management
  - Maintenance and after care
  - Management of failed restorations and implants.
  - Work authorization for implant supported prosthesis - instructions, etc.
- **Maxillofacial prosthodontics**

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- Techniques of evaluation of patients having maxillo- facial defects, classification of defects, diagnosis, treatment, planning and various treatment options. Restoration of speech.
  - Orbital, ocular, nasal, auricular, cranial, cheek prosthesis and lip/cheek plumpers, obturators, palatal lift prosthesis, speech bulb, guiding flange device and palatal augmentation prosthesis.
  - Various clinical and laboratory steps and techniques for treatment of various maxillo-facial defects.
  - Ancillary prosthesis- various types, materials used, methods of fabrication, retention, insertion and instructions for usage.
  - Laboratory/work authorization.
  - Conventional and digital workflow.
  - Usage of implants and magnets for retaining maxillo-facial prosthesis- types, selection and techniques. Various methods of retention of maxillo-facial prosthesis.
  - Combination of partial/complete denture and maxillofacial prosthesis- various types of obturators with partial denture and full denture • Connecting orbital prosthesis to intra oral prosthesis.
  - Armamentarium for treatment.
- **Occlusion**
    - Evaluation (Conventional and digital analysis of occlusion), Diagnosis and Treatment of Occlusal Problems and worn-out dentition, occlusal equilibration-re-establishment of lost vertical dimension.
    - All philosophies of full mouth rehabilitation.

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- Occlusal splints
- Armamentarium for treatment- articulating papers, digital analysis devices etc, rotary instruments and materials.
  
- **Fixed prosthodontics**
  - Definitions and terminologies, classification and principles, design, mechanical, biological, esthetic considerations of components of fixed partial dentures - Retainers, connectors, pontics, laboratory work authorization.
  - Collection of patient's medical and dental history, patient's chief complaint, expectations, systemic and emotional health.
  - Clinical examination of patients– comprehensive extra oral and intra oral examination of all relevant hard and soft tissues. Abutment evaluation and evaluation of edentulous space in particular.
  - Radiographic evaluation, diagnostic impressions , casts, tooth preparations and mockups, jaw relation and diagnostic mounting, evaluation of dentition for pre prosthetic restorative, endodontic, periodontal, surgical and orthodontic adjunctive treatments. Conventional and digital workflow.
  - Diagnosis and treatment planning
  - Shade selection for esthetic rehabilitation, testing for hypersensitivity for local anesthetics, obtaining the written consent for treatment.
  - Armamentarium for tooth preparation and FPD treatment.
  - Biological mechanical and esthetic principles of tooth preparation, steps for tooth preparation- individual tooth preparations for complete metal Crowns, metal free ceramic crowns and metal ceramic crowns. Partial  $\frac{3}{4}$  crowns, mesial and distal half crowns, radicular and telescopic retainers, , laminates, and preparations for Resin Bonded retainers and including intra-coronal, intra - radicular retainers.
  - Gingival margin preparation/ finish line- designs
  - Biological esthetic and mechanical considerations, pontic design, retainer and connector selection.
  - Fluid control and soft tissue management ( gingival retraction techniques- physical, chemical and surgical techniques, gingival retraction cords, gingival retraction chemicals, retraction cord packers, electrocautery, lasers, rubber dam and recent advances)
  - Impression materials and techniques for fixed partial dentures (conventional and digital impressions)
  - Temporization/provisional restorations- materials and techniques
  - Jaw relation recording and usage of face-bows and articulators for crowns and fixed partial dentures,

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- Work authorization
- Casts and dies, die pins, die systems, die spacers, lubricants, wax patterns and waxing techniques.
- Investments, techniques of investing the wax patterns.
- Various casting alloys used and techniques followed and sandblasting.
- Casting defects and management
- Knowledge of resins, provisional restoration materials, metals, alloys, metal ceramic and metal free ceramic fixed partial denture materials including, castable and milled ceramics,
- Knowledge of burnout furnaces, casting machines, milling machines, ceramic furnaces, CAD/CAM equipment and their usage. (Digital workflow subsequent to preparation of tooth)
- Finishing and polishing equipment, instruments and materials used for metal and ceramic crowns and fixed partial dentures.
- Provisional and final insertion of the definitive crowns and fixed partial dentures, evaluation of patient and recall appointments and subsequent management. Various luting agents available.
- Management of failed restorations crowns and fixed partial dentures.
- Laminates- materials used, shade selection, tooth preparation, isolation, impression techniques of temporization, luting/bonding agents used.
- Management of endodontically treated teeth and abutments- evaluation, usage of prefabricated and custom post and cores, various types of posts and cores and materials available.
- Esthetic rehabilitation including smile designing (direct and indirect laminates), conventional and digital smile designing, recent advances in materials, techniques and software.
  
- **Management of temporomandibular joint disorders.**
  
- Anatomy, physiology, its function.
- Temporomandibular joint dysfunction and disorders. Etiology, diagnosis and management.
- Armamentarium for diagnosis and treatment.
- Occlusal equilibration, occlusal splint types, fabrication usage.